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CONTRIBUTION TO THE PHYSIOLOGY OF THE  
CORTEX CEREBRI.

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Nervous Diseases.

ALL those of the profession who interest themselves in physiological matters are already familiar with the experiments made first, some years ago, by Fritsch and Hitzig, of Berlin, and latterly repeated with greater elaboration by them, and by Ferrier, of London, which seem to prove that the cortex cerebri is not, as has been long believed, or at least not over its whole extent, incapable of responding to other stimuli besides those to whose influence it is regularly subjected.

On the contrary, it appears that when a weak current of electricity is applied to certain pretty sharply defined points which lie mainly in the convolutions bordering on and anterior to the fissures of Sylvius and Rolando, certain groups of muscles *on the opposite side, and sometimes on both sides* of the body, are thrown into contraction. The important bearing of these observations upon cerebral physiology and pathology has not failed to gain for them the close attention of neuro-pathologists everywhere, and especially of Dr. Hughlings Jackson, of London, who sees in them the verification of some clinical theories of his own. The observations themselves have received corroboration from all sides, but recently an important criticism has been made on them by Dr. Eugene Dupuy,\* and by MM. Carville and Duret,† and, indeed, by Hitzig himself, in speaking of the experiments of Ferrier,‡ viz., that it is impossible, in using induction currents [Hitzig employs galvanic currents], to confine the irritation to limited districts of the cortex cerebri, and that the muscular contractions which attend, at least, Ferrier's method of irritation are due partly [Hitzig] or entirely [Dupuy] to the irritation of nervous masses which lie buried deeper.

The experiments here recorded were undertaken for the purpose of testing that point, but it may be well, before describing them, to examine a little the adverse testimony just referred to. The criticism of Hitzig was called out by the fact that Ferrier's centres, though in the main corresponding with his, occupied a larger area, and that their position, as observed in cats, differed from that in dogs more than the

\* Examen de quelques points de la physiologie du cerveau. Paris. 1873.

† Gazette Médicale de Paris, Jan. 10, 1874. Vide also review of both in the Archives of Neurology and Electrology, Vol. I., No. 1, May, 1874.

‡ Berliner Klinische Wochenschrift, Feb. 9, 1874.

other differences between these animals would have led him to believe. Into the examination of these ground points we do not undertake to enter.

On the part of Carville and Duret, the criticism referred to was founded mainly upon the results of some experiments in which platinum needles, connected with a sensitive galvanometer, were introduced to different depths into the brains of animals, while the cortex was faradized in the usual manner; and they claim that the galvanometer needle was deviated, even when the distance between the platinum needles and the electrodes which furnished the current amounted to several inches. From these and other facts, to be referred to later, they drew, among others, these conclusions:—

1. That the cortical substance of the hemispheres is not excitable; it is insensible, and does not contain special motor centres.

2. That the effects produced by faradic currents are the effects produced by direct excitation of the corpora striata and crura cerebri, as the currents penetrate to these organs.

Also, that faradic currents, however feeble, are diffused over the surface of the brain, from one point to another.

Although the distinction is not made in their report, it is most probable that Carville and Duret used the primary, and not the secondary induction currents, contrary to Ferrier's habit, otherwise they would not have been able to detect their presence by the galvanometer, for the needle of this instrument is not deflected by the currents of short duration, and whose direction is constantly changing, such as are obtained from the secondary induction coil. This is in so far of importance that the secondary currents, owing to their greater tension [power of overcoming resistance], make their way less weakened by diffusion directly through the tissue separating the wire electrodes, for, although in traversing any conductor electricity diffuses itself to some extent over the whole mass, yet the degree to which it does so is inversely proportioned to its power of forcing a direct passage between the points of entrance and exit, and this power, thanks to the greater number of turns of wire of which the secondary coil is made up, belongs to the secondary induction current in greater degree than to the primary [extra] current.

Dupuy was led to much the same conclusions as those stated, finding, as did also Carville and Duret,\* that "it is possible to excite, by the irritation of any point whatever of the cortex cerebri, contractions affecting, sometimes, a whole limb, which is generally the fore leg, and on the opposite side of the body;" also "that (while the irritation was being made as usual) a galvanoscopic frog-preparation was thrown into contraction when its nerve touched the cortex cerebri at a point far removed from that irritated," and, further,† that nerves at the base of the brain, which have been previously cut through to prevent the transmission from above of nervous excitation, can be excited electrically when applications are made to the surface of the brain in the usual manner, showing to how great an extent diffusion of electrical currents may take place.

That these results were obtained as stated we have no difficulty in believing, but we do not admit that they justify the conclusions drawn.

\* As well as for other reasons, not discussed here because not bearing on the point under consideration.

† So stated at a recent meeting of the New York Society of Neurology and Electrology. Vide New York Medical Journal, July, 1874.

The real question plainly at stake is not, "can we produce effects due to irritation of distant parts while irritating definite points of the cortex cerebri," a question to which a simple consideration of the laws of electro-physics would permit an affirmative answer to be given, but, rather, "can we irritate the cortex cerebri to the extent necessary to produce the results claimed, *without* at the same time irritating deeper seated structures enough to call out their functional activity," and this possibility is not refuted by the experiments of Dupuy, or Carville and Duret, but receives affirmative support from our experiments, although few in number. These consisted in finding, which was always possible, the centres for definite, and nearly or quite uncomplicated, movements, and the minimal current-strength that was necessary to produce these movements, after which, with a sharp knife, we made a cut underneath these centres, leaving a good-sized but thin [by estimation 1 to 2 mm. thick] flap, which contained the suppositions centre. Having done this, we found that if we irritated as before, leaving the flap *in situ*, the movements before observed did not occur.

We then turned the flap up and irritated below it. The same current strength generally failed here, also, to produce the contractions, but they always appeared when the strength was slightly increased; not so, however, when the flap was turned back and adjusted to the electrodes applied on its surface as at first, repeated trials being attended with the same results. The irritations were made with the current from the secondary coil of a Du Bois-Reymond induction apparatus, run by a simple Léclanché cell, and the minimal current, which was found efficient, was strong enough to be felt distinctly by the tongue, scarcely, if at all, by the finger,\* i. e. of about the strength that Ferrier also found usually sufficient.

The animals experimented upon, three in number, were dogs. The method was that usually followed, and no accidents occurred which materially interfered with the investigations. The movements obtained were, in the first experiment, extension of the opposite fore-leg; in the second, extension of opposite fore-paw, flexion of fore-leg at elbow, extension of leg at shoulder, partial extension of paw, these different phases following each other slowly, and the full result only occurring when the irritation had lasted a certain time; in the third, extension of both fore-paws, especially that of the opposite side, and occasional slight movements of hind legs; in the fourth, well-marked closure of the opposite eye, without any other movements, with the exception of occasional struggling.

Subsequent examination showed that the centres which we found agreed quite well with the corresponding ones found by Ferrier, though sometimes more closely, apparently, with those given by Hitzig.

One experiment, given somewhat in detail, will serve as a type of all:

June 6.—A middle-sized, healthy dog was etherized, a good portion of the skull laid bare from the median line down to the zygomatic arch on the right side, and a small piece of bone trephined out from the middle of this surface. The opening so made was enlarged with bone-forceps to the diameter of 1.5 cm., the dura mater removed, and the exposed portion of brain sketched. Muscular bleeding was checked by perchloride of iron; that from the membranes, which was considerable, by pressure made with sponges.

\* In no case was it necessary to make the secondary coil overlap the primary, or even come within an inch of doing so.

Centres were sought for in vain over this surface, with irritations varying in strength from  $D = 15.3$  cm. to  $D = 12.9$  cm.\* Only once all the muscles of the body were thrown into spasmodic contraction, which lasted after the cessation of the irritation, passing over into general struggling, which made more ether necessary.

The hole was then enlarged to about 3 cm. in diameter, and the search continued, but, at first, without success. This was probably because the unusually great tendency on the part of the animal to struggle violently, though it was probably not suffering much pain, obliged us to renew the etherization several times, whereas, as is known, it is only during incomplete etherization that the centres, or most of them, are irritable. At the 13th point of application, with the weak irritation  $D = 14.8$  cm., we obtained *firm closure of left eye*, the animal being pretty well under ether, and quiet.

Cm.  
With  $D = 16$   
 $D = 15.3$

Result.  
Same as before, but less well marked.  
Ditto, better marked than last time.

(From this point on, the animal remained, at least at the moment of experimentation, very quiet. The ether was discontinued just enough to allow the eyes to be open, or partially so, at the proper moments.)

As superficial a section as possible was then made (not more than 1 mm. thick), but the flap left *in situ*.

Application made on top of flap,	$D = 14.8$	Result.
Application made on exposed		0
surface after reflection of flap,	$D = 14.8$	0
Application made on exposed		
surface after reflection of flap,	$D = 12.8$	Left eye firmly closed.
Application made on top of flap		
after replacement,	$D = 12.9$	0
Application made below flap again,	$D = 12.9$	Closure of eye as at first.
" " on top of flap,	$D = 12.9$	0
" " below flap,	$D = 12.9$	Closure of eye as before.
" " on top of flap,	$D = 12.9$	Possibly closure of eye to slight degree.
" " below flap,	$D = 12.9$	Closure of eye as at first, though not so
" " on top of flap,	$D = 12.9$	strongly marked.
		0

No other movements occurred at the moments of experimentation that could be regarded as due to the irritation of the brain, or that materially complicated the results stated.

These experiments were made at the physiological laboratory of the Harvard Medical College, with the kind assistance of Prof. H. P. Bowditch and Dr. Wm. James. Since they were made, the gratifying statement has come to our notice that essentially the same method has been employed by another observer, with the same results. (Braun, in *Eckhard's Beiträge zur Anatomie und Physiologie*, vii. 2; also *Centralblatt*, Berlin, June 13, 1874.

### THREE CASES OF SPINA BIFIDA.†

By M. F. GAVIN, F.R.C.S.

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CONGENITAL fissure of the spine (*spina bifida*) is sufficiently rare to warrant me in bringing three cases of it under your notice, in two of which nothing was done, while the treatment used in the third case may have accelerated death. Late French and English writers on the

\*  $D$  represents the distance between the similar ends of the two coils.  $D = 0$  would indicate that the secondary coil was slipped entirely over the primary. When  $D = 7.5$ , the anterior end of the secondary coil was just level with the posterior end of the primary.

† Read before the South Boston Medical Club.

subject speak of this malformation as being very common, about as much so as hare-lip.

That this malformation is rare in this country, most will acknowledge, a fact fully corroborated by the published hospital reports of our city. The disease consists in an arrest of development of the laminae of one or more vertebrae, generally occurring in the lumbar or dorsal regions, rarely in the cervical; and attended with a hyper-secretion of cerebro-spinal fluid. The increase of cerebro-spinal fluid is not alone interesting in a surgical point, but also in a physiological one. Magendie, in his experiments upon dogs, showed that the pressure of the cerebro-spinal fluid was necessary to a healthy action of the nervous centres. No doubt this fluid gives support to the delicate bloodvessels of the pia mater, as well as protection to the spinal marrow. By some writers, this increased secretion of the spinal fluid is looked upon as the cause of the malformation, the want of ossification or coming together of the spinal arches being entirely due to the presence of a fluid tumor. If such was the cause, I doubt if we would ever have the malformation extend so high as the cervical region.

CASE I.—James D—, a strong, healthy fellow, aged about 17 years, born in Boston of healthy parents. At birth, tumor large as an English walnut over lower lumbar vertebrae and in the centre of back. Very soon after birth, it began to increase in size, especially so when the child cried. When six months old, was treated at Massachusetts General Hospital by having a ligature passed round the base of the tumor, showing that the tumor at that time was pedunculated, but after a few hours the ligature broke and was not reappplied, as the mother was averse to having so painful a method of treatment used; in fact, she declined further treatment. Till the child reached the age of eighteen months, the tumor continued to increase in size. When fourteen months old, the child walked, showing no signs of weakness, or paralysis of lower extremities.

Present condition—a tumor, about as large as a small cocoanut, soft and doughy to the touch, lobulated, broad base, over the lower lumbar vertebrae; pressure does not change its size, but causes intense pain extending to head, and a tendency to vomit. With exception of violent headache, which is generally caused by receiving a blow over tumor, health always exceedingly good. Height 5 feet, 6 inches; weight about 150 pounds.

CASE II.—Laura M—, aged about 4 years, born in Boston, of healthy parents. At birth, a tumor, about the size and shape of a small orange, was discovered in the lumbo-sacral region, and in the middle line of the body. This tumor began to grow in size very soon after birth, and has continued to do so since till at present, when it measures 15 inches in circumference; round, with a broad base, fluctuates, semi-transparent. When child cries or coughs there is a visible increase in size of the tumor, and partial paralysis of lower extremities. Since two years, health of child has been good, but previous to that time was "delicate." At present, child is as bright and intelligent as most children at her age. Since a year, the tumor increased two inches in circumference.

CASE III.—Daniel S—, a strong, healthy-looking child, of healthy parents, aged about six months. At birth, a small, purse-like swelling over spine, midway in the cervical region, and in the middle line of

the body. Soon after birth, swelling began to grow large, and has steadily increased in size till at present, when it hangs from the spine as a good-sized baseball. On pressure, fluid is readily detected; when placed in a strong light, it becomes translucent; over the centre, is a cicatrix, discolored, and running in the long axis of the tumor; pressure causes the child to cry bitterly. The fontanelles were closed; but of that I made no note. The child is well nourished, and large for its age; two lower incisors are through; perhaps, less bright than children of this age; never has held up its head, nor does he now make any effort to do so. The spinous processes of the vertebræ under the tumor were not felt. The parents were anxious to have something done, feeling that the child could not live long in his present condition. In Gross's Surgery, there is a picture of spina bifida, in every respect like the one just described. After explaining to the parents the unpromising nature of the tumor, the great risk involved in any sort of treatment, and feeling that unless something was done the skin over the tumor would soon give way and convulsions follow, I decided on first trying the effect of pressure by clamp, made for the purpose; in fact any other sort of pressure was out of the question, as it could not be kept in position.

Aug. 30th.—Tumor tapped with Dieulafoy's aspirator, care being taken to insert the instrument in the side of tumor. Eight ounces of clear, watery-looking fluid withdrawn, leaving nothing but a pendulous mass, through which the deficiency of spinous processes could be felt. The clamp was now used, but had to be removed after a few hours, owing to the suffering caused by its use. No ill effects followed; the child slept well, and nursed as usual. The tumor was not long in re-filling, and about the middle of September the aspirator was again used, when seven ounces of the same kind of fluid was withdrawn.

Oct. 4th.—Tumor nine inches in circumference. Aspirator used; six ounces withdrawn, and pressure used with a new clamp, but failed to do any good, when pressure with a thick compress and roller bandage was tried. For a few days, child continued restless and feverish.

Oct. 15th.—Aspirator used; nine ounces withdrawn. In nine days, tumor as large as ever, when parents declined to have further treatment used.

Five months later, I saw the child again, when tumor measured twelve inches in circumference, and the skin covering the lower part was ulcerated. Aspirator used; ten ounces withdrawn, and pressure applied. I did not see the child afterward, but learned of his death, which occurred two days after the aspirator was last used. The parents declined to have a *post-mortem* examination, or even allow me to see the child. I am indebted to Prof. James C. White for analysing the contents of the tumor. "The fluid was identical with the serous transudation occurring in the cerebro-spinal cavities—transparent, colorless, alkaline. Specific gravity 1.003. No sediment." Every time the aspirator was used the fluid withdrawn was tested for sugar, but none was found. In a little more than a month, thirty ounces, or about two pounds of cerebro-spinal fluid was withdrawn without producing any apparent effect. In Sir Astley Cooper's case, that of a little child, aged ten weeks, 23½ ounces of cerebro-spinal fluid was withdrawn in one month and five days. I was anxious to find the presence of sugar in the fluid, as it has been spoken of by French writers, and used as a

help in differential diagnosis; but the most careful examination, both by the yeast and Trommer's test, failed to find any. As in all other diseases, it is important to make a correct diagnosis, for we find\* mistakes have been made. The diseases likely to be mistaken for spina bifida are the so-called false spina bifida, where the contents of the tumor does not communicate with the arachnoid cavity, congenital, fatty or cystic tumors and congenital sacral tumors, all of which have been mistaken for true spina bifida. The diagnosis of true and false spina bifida, when the latter is cystic, must at all times be difficult in the absence of some of the fluid contents of the tumor. Congenital, fatty tumors, like all fatty tumors, are lobulated, and the skin can be pushed up and moved over the tumor. Most surgical writers lay great stress on the want of the spinous processes as a means of diagnosis. In exceptional cases, we may be able to detect the cleft in the spine; but, ordinarily, it is not possible to reach the spinous processes, allowing they were present, through a large fluid tumor. Where false spina bifida is of a cystic nature, and communicates with the spinal canal, I know of no other means of diagnosis than a chemical examination of the fluid. In a case of this nature, practically speaking, accurate diagnosis is of little moment, as the treatment is the same in both cases. In the first case mentioned, there can be little doubt about the diagnosis. The mother was told at the General Hospital that the child would be likely to have convulsions, while the treatment used is a proof; in no other disease was it likely to have a ligature used. At the present time, tumor might be classed with false spina bifida; that is, there is no communication between the sac and spinal membranes. The second case offered better chance of treatment than the third case, inasmuch as compression could be applied after the aspirator had been used. I recommended to have the tumor evacuated and compression applied for the following reasons: the steady increase of size of the tumor, with a thinning of the skin, and the partial paralysis growing worse. The parents were unwilling to have anything done that involved a risk of life.

In the third case, there could be no question of diagnosis. Treatment in the first case, a padded truss to protect the tumor from injury. Second case, treatment declined. The treatment used in the third case was that which involved the smallest risk to life, and with Dieulafoy's aspirator the risk was small compared with a common trocar. I believe this is the first case of spina bifida where the aspirator has been used. Reasons for operating: first, the tumor was growing large, causing great inconvenience to the little sufferer, and if allowed to go on the skin must burst, convulsions and death would likely follow; second, the transparency of the tumor showed the contents of the sac to be fluid, and not the spinal cord or nerves, a condition favorable for treatment. Cooper, Erichsen and others recommend this form of operation, before resorting to more severe measures.

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**SMALLPOX IN ENGLAND.**—It is stated that smallpox, in its most virulent and fatal form, has been prevailing for some months in Birmingham, the great central town of England, no fewer than 289 deaths having been already recorded.

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\* Mr. Pollock records a case where a fatty tumor was mistaken for true spina bifida.

## Progress in Medicine.

### REPORT ON PHYSIOLOGY.

By H. P. BOWDITCH, M.D.

#### EFFECT OF APNŒA ON CONVULSIONS.

FILEHNE (*Reichert and Du Bois Reymond's Archiv*, 1873, p. 361) reports experiments made under Munk's directions to determine the effect of forced artificial respiration on the normal respiratory movements and on the convulsions produced by strychnia. The author confirms the conclusions of Rosenthal, and rejects those of Brown-Séquard (*Archives de Physiologie*, iv. p. 204). For a better comprehension of the subject, a brief account of the experiments and conclusions of the latter observer may be given. Having found that in guinea pigs, rendered artificially epileptic, the attacks could be cut short by directing a stream of carbonic acid forcibly against the mucous membrane of the pharynx, Brown-Séquard was led to suppose that the arrest of the movements of respiration (apnœa) and of strychnia convulsions, which is effected by forced artificial respiration, is due, not to a superoxygenation of the blood, as Rosenthal supposed, but to an inhibitory action of the vagus, and perhaps other nerves, on the nervous centres of the medulla and cord. Three series of experiments lent force to this hypothesis. In the first place, it was found, that after section of the cervical cord or the vagus nerves, forced artificial respiration produced neither apnœa nor arrest of strychnia convulsions. Secondly, injection of carbonic acid from below upwards through the larynx (the animal breathing through a tracheal canula) caused immediate arrest of respiration. Thirdly, injection of carbonic acid into the lungs caused immediate cessation of the convulsions due to loss of blood.

These experiments of Brown-Séquard, Filehne repeats and criticizes. He finds, in the first place, that neither the section of the cervical cord nor that of the vagus nerves prevents the production of apnœa by artificial respiration. It does not occur so readily as under normal conditions, owing, as Filehne supposes, to disturbances of the circulation, caused by these nervous lesions. He finds, too, that strychnia convulsions are stopped by artificial respiration, as described by Rosenthal, and that the fatal effects of the poison can thus be warded off. In this respect, his observations are at variance with those of Rossbach (*Centralblatt für die medicinischen Wissenschaften*, 1873, p. 369), who denies that artificial respiration has any effect upon the intensity or the duration of the strychnia convulsions. This discrepancy Filehne explains by supposing that Rossbach did not use animals sufficiently alike in all respects for making comparative experiments.

In regard to the effect of section of the vagi on this saving influence of forced respiration in strychnia poisoning, Filehne finds that a dose of strychnia, the effects of which can be warded off by forced respiration, becomes fatal on section of the vagi, but he also finds that an animal poisoned with strychnia and with vagi cut may be saved from death by forced respiration, while an animal similarly treated, but left to breathe naturally, dies in violent tetanus. He therefore concludes that the effect of section of the vagi in rendering fatal a non-fatal dose

of strychnia is due to a disturbance of the circulation which prevents the thorough oxygenation of the blood in spite of the vigorous artificial respiration. The fact that the first appearance of tetanus in an animal thus treated coincides with a sensible diminution in the force of the heart's contractions, is an argument in favor of this view.

Filehne has also studied the effect of a stream of carbonic acid on the nasal and pharyngeal mucous membrane, and finds that when the stream is so directed that the gas comes in contact with the mucous membrane of the nostrils an arrest of the respiratory movements at once takes place, whereas no such effect is produced when the irritation is applied to the trachea, larynx or fauces. This is a reflex, inhibitory phenomenon, the nature of which has been carefully studied by Kratschmer (*Wiener Sitzungsberichte*, Band 62, abth. ii. June 17, 1870), who has recognized the trigeminal nerve as the channel through which the inhibitory influence is conveyed. Filehne and Brown-Séquard agree, therefore, in regarding the arrest of respiration by a stream of carbonic acid directed into the air passages as an inhibitory phenomenon, though the latter observer does not, like the former, limit the surface, the irritation of which produces this effect, to the nasal mucous membrane.

Brown-Séquard's error is, according to Filehne, in confounding the stoppage of respiration thus produced with true apnoea, which depends upon superoxygenation of the blood. Filehne finally makes experiments to determine whether the irritation by carbonic acid can produce not only stoppage of respiration, but also, as Brown-Séquard maintains, arrest of strychnia convulsions, and of artificially produced epilepsy.

By the most carefully conducted experiments, he fails to convince himself that the stream of carbonic acid has any effect in shortening the convulsions either of strychnia or epilepsy. How such discordant results are to be reconciled is not easy to see, but Filehne suggests that, owing to the short and irregular duration ( $\frac{1}{4}$ -1') of the artificial epileptic attacks, one can readily deceive one's self as to the effect of applications made to arrest them.

In this connection must also be mentioned the experiments of Ananoff (*Centralblatt für die medicinischen Wissenschaften*, 6 June, 1874) on the effect of oxygen on increased reflex irritability.

This observer gave a fatal dose of strychnia to two rabbits, and allowed one of them to breathe oxygen, while the other breathed atmospheric air. The latter died in convulsions seven minutes after the administration of the poison, while the former had no convulsions whatever as long as the respiration of oxygen was kept up (twenty-eight minutes), and finally died with only slight spasms ten minutes after the oxygen had been removed. Inasmuch as the oxygen was conducted from the gasometer to the lungs of the animal under a certain pressure, it was necessary to determine whether atmospheric air, breathed under the same pressure, would not produce the same effect. For this purpose, two rabbits were poisoned with strychnia, as before, and one of them made to breathe air coming from the gasometer under pressure, while the other breathed under natural conditions. In the former, tetanic spasms were produced by external irritation seven minutes, and death followed twenty minutes after the administration of the poison, while the latter died at the end of six minutes.

A third experiment was made to determine the difference between

the effect of oxygen and that of an increased amount of atmospheric air. Of two rabbits, both poisoned with strychnia, it was found that the one which breathed oxygen remained free from spasms as long as the oxygen inhalation was kept up, while the one which breathed atmospheric air under pressure had convulsions in seven, and died in twenty, minutes. From this, it seems evident that it is really the presence of oxygen in the blood which prevents the occurrence of strychnia convulsions, and from Rosenthal's experiments it is clear that the amount of oxygen necessary to produce this effect can be forced into the blood by artificial respiration without having recourse to the inhalation of pure oxygen, though in the experiments of Ananoff the effect of breathing condensed air was only to retard and not to prevent the convulsive action of the poison.

#### MUSCLES.

Ranvier (*Archives de Physiologie*, vi. p. 5) calls attention to the difference in appearance and physiological properties presented by the striped muscles of the same animal. He finds, for instance, that in the leg of the rabbit the semi-tendinosus, the adductor brevis, the quadratus femoris and the soleus have a redder color than the rectus, the vasti, the adductor magnus, the biceps, the gemelli, &c., which, in contrast to the others, are denominated "pale muscles." This difference in color is independent of the amount of blood which the muscles contain, for it persists after the vessels of the limb have been washed out with artificial serum. Corresponding to this difference in appearance is a difference in the nature of the contraction. The red muscle contracts much less promptly than the pale muscle under the influence of an electrical stimulus, and relaxes much more slowly when the stimulus is removed. The period of latent irritation and the duration of the single muscular impulse or shock\* is from four to six times greater in the red than in the pale muscles, while the rapidity of stimulation which is sufficient to produce complete tetanus is correspondingly less. These differences are equally manifest, whether the irritation is applied to the nerve or directly to the muscle.

Histological differences are also noticed in the two sorts of muscles. In the pale muscles, the transverse striation is much more distinct than the longitudinal, while in the red muscles the longitudinal striation is very well marked, and the transverse striæ are not straight, as in the pale muscles, but formed of broken lines. Nuclei are much more abundant in the red than in the pale fibres. Muscles presenting these same differences are also found in various species of fish.

Ranvier has also recently reported to the Société de Biologie (*Révue Scientifique*, 6 June, 1874) a very ingenious method of studying the transverse striæ of muscles. The method consists in using a histological preparation of a striped muscle for the production of a diffraction spectrum, the striæ of the muscle producing the same effect upon the light as the fine lines ruled on glass, which are usually employed for this purpose. The spectrum thus produced is found to undergo no change when the muscle contracts, proving that the transverse striæ of muscles do not disappear in contraction, as has been sometimes maintained.

[To be concluded.]

\* It would, perhaps, be well to adopt the word "jerk," as the equivalent of the French "secousse" or the German "zuckung," to express the contraction of a muscle in consequence of a single instantaneous irritation.

### Bibliographical Notices.

*Lectures on the Diseases of Infancy and Childhood.* By CHARLES WEST, M.D. Fifth American from the Sixth Revised and Enlarged English Edition. Philadelphia: Henry C. Lea. 1874.

ANYTHING from the pen of Dr. West is sure to meet with a hearty welcome from all those interested in the study of children's diseases. The author, wisely, we think, preserves the old form of his work, for there is a great charm in the conversational and friendly way in which he presents the different subjects under the form of lectures. The universal respect with which all his teachings are received needs no better illustration than the fact that his book has passed through five editions in this country, through four in German, and that, while it has also been translated into Italian, Danish, Dutch and Russian, a French translation is now in press.

We naturally turn first to see what changes time may have made in the author's ideas of treatment, which have not always seemed to keep pace with those of the more rational and modern school.

That his treatment, more especially of acute diseases, has changed, we find ample evidence in his later writings, though we will probably not agree with him as to the causes to which he attributes this change.

In speaking of depletion, p. 29, he says:—

"Changes in medical opinion, such as have taken place within the past twenty years, influence one's conduct by slow and almost imperceptible degrees, and I find that my practice now differs much from what it was a quarter of a century ago; that I deplete less than I did, that I have less faith in mercury, that I employ antimony more rarely, that I have more confidence in nature's powers, less reliance on my own resources. And yet I am unwilling to believe that all my former observations were erroneous, and that my old faith was entirely misplaced; but, unhappily, I have no longer the leisure to test the value of these changes as I could wish; while the peculiarities of consultation practice in a large city, though they may sharpen one's perception and increase one's promptness in action, are anything but favorable to scientific investigation, or to accurate reasoning."

Again, in his lecture on the treatment of bronchitis, we find, p. 277: "in reconsidering the rules which I shall lay down for your guidance, I am struck by the different conclusions to which more than thirty years of the practice of my profession have led me from those which I adopted at the onset of my career. It is, I believe, but rarely, at the present day, that depletion is indicated in bronchitis or pneumonia; and tartar emetic needs to be given more sparingly than in former years, and with less certainty in cutting short at its very onset the inflammatory action. And yet, when looking back on the records of cases where I abstracted blood freely, and gave antimony in large doses, I cannot admit that my practice then was a mistaken one, that the recoveries which then took place were the result of accident, or that, in counseling now a different course, I am merely following the fashion or the prejudice of the age." . . . . . "You will now understand, gentlemen, why it was, when I told you at the beginning of this lecture, that the necessity, nay, even the utility of depletion in pneumonia did not seem to me well established, that I made a point of adding *just at present*. I did so, because it so happens that now for the past several years we are in the midst of an epidemic constitution, in which diseases do not require this remedy, though, formerly, they did require it and though in the course of time they will, no doubt, stand in need of it again."

The chapter upon "Active Congestion of the Brain" has been largely rewritten and altered. In former editions, the author has been used to class the symptoms of violent cerebral disturbance, which sometimes usher in the eruptive fevers, and even prove fatal before the rash has had time to show itself, among those most strikingly illustrating active cerebral congestion,

whereas now this opinion has been given up in common with other of the best authorities and these symptoms regarded as partly dependent on the high temperature of the blood. The symptoms of sunstroke are now classed under the same category. The treatment has likewise undergone a change, with regard to which he now says: "While, therefore, I would not say that depletion ought never to be practised, and while, if hydropathy failed, I should still have recourse to it, I no longer employ, nor should I advise, that free depletion, to which, in ignorance of these other means, I was accustomed to have recourse."

We find in this edition the old name of "acute hydrocephalus" discarded, tubercular meningitis being substituted for it. The subject of the ophthalmoscope as an aid to diagnosis of diseases of the brain receives attention in this lecture. It is regarded as adding but little to the knowledge which we derive from other sources in the acute disorders of the brain; but further on, when speaking of the diagnosis of tubercle of the brain he says: "I need not remind you of the value of the ophthalmoscope in doubtful cases, a value which additional experience in its use will probably tend to increase. The appearances which it discovers are such, indeed, as one might beforehand expect to find, namely, a state of congestion of the optic disk, which is swollen, its outline indistinct, its surface often dotted with tiny ecchymoses, the arteries pale, and diminished in size, whilst numerous veins which were before invisible may now be seen enlarged, full, tortuous or even varicose. This appearance is seldom wanting in cerebral tumors of any size, and is almost invariably present in tumors of the cerebellum, which is, as you will recollect, the favorite seat of the tubercular deposit. In doubtful cases, I always avail myself of the special knowledge of some colleague, expert in the use of the instrument. I advise you to learn to use it for yourselves."

We would naturally not look for anything new in the treatment of so fatal a disease as tubercular meningitis, but in this chapter are mentioned three remedies, which appear in this edition for the first time, viz., tincture of acconite, "from which in cases of general febrile disturbance, accompanied with excitement of the brain, he has seen much good result," hydrate of chloral, and bromide of potassium. Other changes and additions since the edition previous to the present one are not very numerous. The lectures upon abdominal tumors and upon diseases of the kidney are entirely re-written and very much enlarged, as is also the subject of paracentesis thoracis. Among the diseases of the respiratory organs, the subject of infantile asphyxia receives attention in this edition.

The statistics of cases from his own practice have become much larger. The prescriptions scattered through the book have been made up with care and skill for rendering them palatable, a certainly no trivial accomplishment.

The book is printed in the well-known form of American medical works, with the ugly white cover. The type is excellent, and there are remarkably few typographical errors.

*Ligation of Arteries.* By Dr. L. H. FARABEUF. Translated by JOHN D. JACKSON, M.D., of Danville, Kentucky. Philadelphia: J. B. Lippincott & Co. 1874.

THE want of a good manual on operative surgery, adapted for dissecting-room use, has long been felt, not only by those whose duty it is to give instruction in this department of surgery, but also by the students who look in vain in ordinary text-books for the careful and minute directions which they have listened to in the lecture-room. It is to meet, in part at least, such a want as this that Dr. Jackson has translated Farabeuf's "*Ligation of Arteries.*" The translator has made a good selection for this purpose, for the author's position, as one of the rising surgeons, and the most prominent teacher of this branch in Paris, gives a tinge of authority and originality to such a book, which could not otherwise easily be infused into it. The first part of this book is devoted to generalities: the "description of the ligation of an artery in its continuity," on the surface of stumps, and also to some of the other means employed to obliterate arteries. We find here a great deal

of useful and interesting matter, illustrated, as, indeed, the whole book is, with original wood-cuts, which, considering the small space they are necessarily crowded into, serve more than usually well to illustrate the special points for which they were designed. Such a cut as that which represents the artery and its veins covered by the cellular sheath fastened to a piece of cork, a pair of forceps lifting up a transverse fold of the sheath as should be done when laying bare the artery, well illustrates this point, and helps to impress upon the student the necessity for careful attention to detail, delicate manipulation and neat workmanship, not the least important of the advantages to be derived from a course on operative surgery. Students are but too apt to feel that, provided the required vessel has been found and secured, their task has been satisfactorily accomplished, and are prone to lose sight of the advantages to be gained by a study of the various steps of these operations, the manner in which they are performed and the skill thus acquired in the use of the knife. The importance of this has, we think, been fully realized by the author. Part second is devoted to "special ligations." The difficulties of this task have, on the whole, been fairly overcome, although, occasionally, the description becomes somewhat obscure, for which the translator is in part only to blame, although at many points the French idiom becomes somewhat uncomfortably apparent. We regret to see that the translator has employed such terms as "ligation" and "ligate," the somewhat pedantic substitutes for "ligature" and "tie," which we should be glad to see restored to their old place in our American surgical literature. The publishers have done their work well. The size and binding of the book are such that it can easily be slipped into the surgeon's bag or the student's pocket.

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*Observations on the Pathology and Treatment of Cholera; the Result of Forty Years' Experience.* By JOHN MURRAY, M.D., Inspector-General of Hospitals, late of Bengal. London: Smith, Elder & Co. 1874. 16mo. Pp. 58.

We have read with interest this little book, which will commend itself to every one who desires to know the treatment most likely to be of use in this terrible disease. The author does not believe in any specific treatment, but asserts that a very large proportion of cases can be saved by prompt and appropriate measures. As the result of many years' study of the disease during many epidemics in India, his suggestions are entitled to our respect. We have not found anything new in the book, but the descriptions of the symptoms are so clear, and the directions for treatment are so judicious, that we do not hesitate to recommend it to all who are likely to have cases of cholera to treat, as a most valuable guide.

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#### BOOKS AND PAMPHLETS RECEIVED.

*Body and Mind.* By Henry Maudsley, M.D. American Edition. New York: D. Appleton & Co. 1874. (For sale by A. Williams & Co.)

*Materia Medica for the Use of Students.* By John B. Biddle, M.D. Sixth Edition. Revised and enlarged. Philadelphia: Lindsay & Blakiston. 1874. (For sale by A. Williams & Co.)

*A Treatise on Food and Dietetics.* By F. W. Pavy, M.D., F.R.S. Philadelphia: Henry C. Lea. 1874.

*The Physiology of the Circulation in Plants, in the lower Animals, and in Man.* By J. Bell Pettigrew, M.D., F.R.S., &c. London: Macmillan & Co. 1874. (For sale by James Campbell.)

*Report of the Board of Commissioners of the Fourth Cincinnati Industrial Exposition.* 1873.

*Electro-Therapeutics: A Condensed Manual of Medical Electricity.* By D. F. Lincoln, M.D., Physician to the Department of Diseases of the Nervous System, Boston Dispensary. Philadelphia: Henry C. Lea. 1874.

*Hints in Obstetric Procedure.* The Annual Address before the Philadelphia County Medical Society, by William B. Atkinson, M.D. 1874.

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**Boston Medical and Surgical Journal.**

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BOSTON: THURSDAY, JULY 16, 1874.

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WE are gratified to learn that the prospect is very promising for the long-needed extension of building accommodations at the City Hospital. Year after year, the Trustees have pointed out in their annual report the fact that more room was absolutely needed to fulfil the demand made on the hospital. The annexation of extensive territory to the city has made the need still more emphatically felt, and the emergency was so plain and so imperative that a liberal appropriation was made by the City Council the present year to cover the necessary expenditure.

The building plans, which have been adopted by the Trustees of the Hospital, are cordially approved by expert judges (physicians and others) who have examined them. They contemplate the erection of buildings which shall combine the largest utility with the wisest and most recent sanitary improvements in hospital-construction, and which, withal, shall not be devoid of the architectural beauty characteristic of the present structure. With new, single-ward pavilions, of improved construction, with a large, well-lighted surgical amphitheatre, with an increased number of distinct wards, wherein particular attention will be paid to ventilation, with added facilities for the treatment of special cases, ophthalmic, aural, the diseases of women and of children, and with new arrangements for internal administration, we predict that the Boston City Hospital will inevitably fill a high place among the hospitals of the country, both as regards the benefits extended to the needy sick of the city, and as a field for medical and surgical observation. We sincerely trust that nothing will occur to prevent the speedy realization of plans which have been so carefully and so admirably matured.

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THE recent "hearing" given at the City Hall on the subject of a public park renews the hopes of those who have, for a long time, patiently waited for a second movement on the part of the city in this direction. We think his honor, the mayor, who, we are glad to learn, is warmly interested in the success of this undertaking, acted wisely in giving at the outset an opportunity for a free expression of popular opinion on the subject. Although there seems to exist, at the present time, but little doubt in the minds of the majority of our citizens as to the advisability of public grounds, laid out on a scale similar to that

which exists at present in nearly all of our large cities, the great diversity of opinion brought out on the occasion alluded to, as to the situation and extent of the park, leads one to fear that it will prove a matter of considerable difficulty to unite upon any one plan which will meet with general satisfaction—an obstacle which, undoubtedly, was chiefly instrumental in defeating the project a year or two ago. It is a good omen, however, that the matter has been placed this year in the hands of a committee, whose number is small and composed of men eminently entitled to the confidence of those who wish to see a park so situated and laid out as to be an available and agreeable place of resort for the majority of the inhabitants of the city. One of the chief difficulties in the way of accomplishing this most desirable end arises from the many advantages which the environs of the city offer for such a park. Of the innumerable plans with which the public have been entertained of late there is scarcely one that does not include most attractive portions of the surrounding country. The hearing is, we understand, to be renewed at some future day, and when the subject has been fully discussed in all its bearings, we shall hope to receive from the committee a plan which will satisfy the majority and prove creditable to the city. We have already expressed ourselves freely as to the sanitary advantages of public parks, and it is hardly necessary to repeat our opinion here. The citizens of Boston, we fear, have not, in times past, fully realized these advantages, but we hope to find that a change in public sentiment has taken place, that the disposition to lay aside all sectional feeling and leave the whole matter in competent hands has been gaining ground. Judging from the manner in which this movement has been inaugurated, and from the character of the men who now have the project in charge, we have good reason to hope that all obstacles will, on this occasion, be readily removed, and the project carried through successfully.

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**PATHOLOGY AND TREATMENT OF OVARIAN DISEASES.**—(*Continued from page 43.*)—The remaining affections of the ovary are those which are the result of increased growth, usually taking the form of cystic degeneration. More rarely the growth is solid, and may be either fibro-myxomatous, or, more commonly, cancer. There are no diseases in the province of surgery where more care is needed in weighing every point in the history, every symptom and sign, for the purpose of establishing an accurate diagnosis, than in those classed under the head of ovarian tumors. It is best to make, first of all, a mental list of all the conditions that might exist, and exclude one after another until the alternative is left.

From the history alone, no ovarian tumor can be diagnosticated. The rate of increase gives no guide. The details given by the patient as to the region in which the growth was first observed are often very misleading. Tumors of one ovary are often stated by the bearers to have originated in the side opposite to that from which they are found to grow. The menstrual histories are to be almost disregarded in making the diagnosis. With some, me-

norrhagia, with others amenorrhœa, may occur. It is especially important to eliminate pregnancy, particularly the condition of hydramnios, which the author has known to be treated with fatal results, on two occasions, by tapping. The uterus, in the early months of normal pregnancy, is not unfrequently displaced to one or other side, and has often been mistaken for an ovarian cyst.

For the diagnosis of ovarian tumors, there are varied and almost numberless symptoms, the great majority being of little or no consequence for accuracy, and none of them are trustworthy. In the early growth of a simple cyst, symptoms of any kind are seldom met with until the tumor is sufficiently large to be impacted within the pelvis. The growth of dermoid cysts, on the contrary, is often accompanied by intense pain. As a rule, pain is not met with until cystic tumors are large enough, if out of the pelvis, to press on important viscera, or unless the surface undergoes inflammatory change. As it enlarges, the symptoms become more varied and numerous. In the pelvis, its pressure gives rise to dysuria or incontinence, constipation or diarrhœa, and to various neuralgias; in the abdominal cavity, by pressure on the stomach, liver and diaphragm, it often produces nausea and vomiting, distaste for food, &c. Coincidentally, there appear indications of great systemic alterations.

Ordinarily, the presence of an ovarian tumor is not brought to the surgeon's notice till it has reached a sufficient size to rise out of the pelvis and appear as an abdominal enlargement. Sometimes, however, it is necessary to determine the nature of a small pelvic tumor. An ovarian tumor, in this case, will be found to be almost invariably behind the uterus. Usually, this organ can be fixed between the two hands; behind it is the tumor, and, if the uterus can be moved independently of it, and if the tumor can also be raised out of the pelvis, no doubt need be felt that it is a tumor of the ovary or of the broad ligament; how to determine between these two it is hard to say, nor is it of much consequence.

As the tumor increases in size and rises out of the pelvis, it becomes more difficult to determine that it is not intimately associated with the uterus. It is often necessary to introduce the sound to determine this point; but, as a rule, this ought never to be done at the first examination. It not unfrequently happens that menstruation goes on for a few months after conception, and to assert the diagnosis between early pregnancy and an ovarian tumor just rising out of the pelvis, at a first examination, is a task which only the rash or the greatly experienced will undertake. Only when it has been ascertained, by manipulation, that the uterus is not enlarged, may the sound be introduced. If then it be ascertained that the tumor is not uterine, that it is rounded, elastic, and capable, to some extent, of being raised out of the pelvis, it is almost certainly ovarian. It may be ovarian if fixed, though it is rarely adherent at so early a stage of growth. If fixed, it may be a hæmatocœle, an abscess, or a soft tumor growing from bone; previous history, symptoms, and, above all, exploration by the aspirator, will determine these points.

When an ovarian tumor has risen out of the pelvis, and has met with none of the accidents to which it is liable, its diagnosis is easy. Palpation and percussion will eliminate phantom tumors. Fluctuation will assist in determining whether it be uni- or multi-locular. Two conditions must be carefully excluded—cystic disease of the uterus and hydramnios. In the former, the tumor will be found associated with the uterus, the latter moving along with it when moved, and being dragged upwards by it to an extent that ought always to make us cautious.

Solid uterine tumors, besides the absence of fluctuation, have in addition two vascular signs not met with in ovarian growths: namely, an aortic impulse, which may be seen and felt, and an enlargement of the uterine arteries, to be felt in the vagina.

Hydramnios generally occurs in twins. Ballotement will assist in determining the differential diagnosis between a unilocular ovarian cyst and a distended uterus.

If the tumor be found to be not uterine and solid, yet attached to the uterus, and moving it so as to lead to the belief that it is ovarian, we have a choice between a dermoid cyst, a fibrous tumor of the ovary, cancer of the ovary, or a pedunculated fibrous tumor of the uterus. Fluctuation in some part, and its peculiar nodulated character, will betray the dermoid cyst, while fibrous tumors of the ovary and cancer are very rare.

The main difficulties in the diagnosis of an ovarian tumor are met with in the subsequent stages of its growth, between the time when it has risen above the brim of the pelvis, as far as the umbilicus, until it has reached its extremest size. Fluctuation, of so much use at an earlier stage, comes to have a decreasing value. Percussion will generally show, in an ovarian tumor, the characteristic distribution of dulness, though accidental complications may vitiate the value of this sign.

The *tactus eruditus* of a practised ovariotomist can recognize—when both an ovarian tumor and ascites are present at the same time—that there is a double wave of fluctuation; one superficial and rapid, due to the ascitic fluid, and another deeper and perceptibly less rapid, due to the fluid in the cyst.

The enlargement of veins often seen in the skin of the abdomen in cases of ovarian tumor is of no great assistance as a diagnostic sign. Auscultation gives chiefly negative signs. Tapping, either for the removal of ascitic fluid or the contents of a cyst, is often a great help towards an accurate diagnosis. By the removal of peritoneal dropsy, we may discover the actual relations of an ovarian tumor, or we may find that the supposed tumor has no existence, and by removing the contents of a unilocular tumor, or of one or more of the major cysts of a multilocular growth, we may determine the existence of pelvic adhesions, of pregnancy, or of some other condition that may alter our views as to treatment.

Formerly, great stress was laid on the diagnosis of adhesions, but modern experience has led to a disregard almost wholly of adhesions that are not visceral or pelvic.

A final means for purposes of diagnosis, a *dernier resort* in cases of doubt, is the exploratory incision. The experience gained by the operator from one such case ought to assist him in avoiding its necessity in similar doubtful cases.

Mr. Spencer Wells has characterized the condition of the medical treatment of ovarian tumors as one of hopeless impotence.

The surgical treatment of ovarian tumors has now been simplified into two operations: the minor operation of tapping, which is palliative, and rarely curative, and the major operation of ovariotomy, which is either curative or fatal. Tapping by the vagina is not usually attended with good results.

The proper selection of cases for the performance of ovariotomy is one of difficulty, and can be based on experience alone. In the author's opinion, there can be only two reasons for refusing to do ovariotomy—either that the case is not far enough advanced, or that the tumor, in all probability, could not be removed. The most unfavorable case for ovariotomy is to be found in a young, healthy woman, with a medium-sized tumor. The rule ought to be to delay an ovariotomy as long as is consistent with the patient's chances of recovery, bearing in mind that it is not the healthiest that recover best.

Presupposing that a proper case has been selected, experience shows that the more nearly the patient's surroundings resemble those of a healthy private house the better. She requires some preparation for the change that is about to be made in her alvine actions. The time of the operation should be about midway between two menstrual periods. As to the anæsthetic to be employed, the author objects to chloroform, on account of the vomiting which follows its use, and he thinks sulphuric ether is not much better. He recommends the bichloride of methylene and the methylene ether. (The writer then goes on to state his method of operating.)

If there be no adhesions, and no large secondary cysts, ovariotomy, thus far, is a very simple operation. The complications and unsuspected difficulties are endless, and tax the presence of mind and ingenuity of the opera-

rator. Thus a second dermoid cyst may be found packed down in the pelvis, and it may be very difficult to remove it. For securing the pedicle, Mr. Wells's calliper-clamp is preferred.

Any tumor of the uterus had better be left alone, unless it be markedly pedunculated. If the uterus be enlarged by pregnancy, it must not be interfered with; but if unfortunately punctured in mistake for a cyst it is best to lay it open and empty it.

The after-course of a case of ovariectomy is subject to many mishaps. Of their approach, the temperature curve is the most trustworthy indication. Immediately after the operation, the temperature almost invariably falls considerably. To obviate the shock, it is well to place hot-water bottles to the sides and feet, and administer a diffusible stimulant. Advantage has resulted from the practice of giving a subcutaneous injection of morphia immediately after the operation.

For the first twenty-four hours after ovariectomy, the patient is allowed no other sustenance than ice or iced water, and, perhaps, in case of sickness, a little soda-water and brandy, or champagne. Nutriment may be given cautiously on the second day, in the form of chicken-broth or beef-tea, in small quantities, frequently, so as to obviate vomiting. No solid food to be taken till after the fourth day.

In the event of the occurrence of symptoms of peritonitis, special interference may be necessary, such as opening the recto-uterine *cul-de-sac* from the vagina for drainage. Septic poisoning is no more a peculiarity of ovariectomy than it is of amputations.

Vomiting, a frequent and troublesome symptom, must be stopped, if possible. The most useful remedy in Mr. Tait's experience is Morson's pepsine wine, given in drachm-doses every ten minutes with a little ice-water.

Flatulence is often a distressing symptom, and, if accompanied by a high temperature, is pathognomonic of peritonitis. Milk and lime-water often mitigate it, and the passage of a Burns's tube, as far as possible, up the rectum, will give much relief. Failing that, the author has frequently punctured the distended bowels with a fine exploring trocar, and kept it in for some hours, with great relief. Inflammatory attacks of the chest and diarrhoea sometimes occur. For three or four days after the operation, the catheter should be used every six or seven hours. The bowels should be kept closed by opium for seven or eight days. After the wound has healed, the patient should wear a tight-fitting abdominal belt instead of stays; for, in spite of all care in inserting stitches, there is a proneness to the formation of ventral hernia in the cicatrix for many months after the newness of the union has passed off.

The pathology of ovarian cysts involves a number of questions that have been raised and discussed by observers of the greatest eminence, but thus far there are no very satisfactory explanations of the growths. As to the causes of ovarian dropsy, we must confess that we know nothing about them. The most common form, the adenoid or proliferous, and also the rare multiple tumors, occur during the period of life when ovarian cell-growth is mature; the more rare unilocular cystic growths, besides being met with during this period, occur at the extremes of life.

The author has not yet met with an ovarian tumor that was unilocular, and he believes that all unilocular tumors in the neighborhood of the ovary are not ovarian, but of parovarian origin. The parovarium consists of a few closed linear sacs, the remains of the tubules of the Wolfian body in fetal life, which may readily be seen on holding the broad ligament, with the ovary and Fallopian tube *in situ*, up to the light. These tubules frequently contain a perceptible amount of fluid, and are frequently accidentally found in *post-mortem* examinations, distended to the size of beans or filbert-nuts. In every truly unilocular tumor, Mr. Tait has found the ovary unaffected, though, on several occasions, he has seen it stretched over the cyst-wall.

Mr. Tait has met with an example of a rare variety of ovarian tumors, the origin of which has been traced by Rokitsansky and Ritchie. In the case

recorded by the author, both ovaries were affected in their entirety. The tumors were multilocular, and had one or two major, with innumerable minor cysts, graduating down to the most minute size. The tumors had the appearance of huge white raspberries. An examination of the contents of a large number of the cysts discovered in every one more or less distinct remains of an ovum. The condition seemed to be an hypertrophy of the ovaries, with arrested development of their contents.

(To be continued.)

**EXTRACTION OF A FOREIGN BODY FROM THE MALE URETHRA.**—In the tenth number of *Le Bulletin de Thérapeutique* (1873), is mentioned the case of a man suffering from stricture, who was in the habit of passing an elastic catheter for himself. One day, he passed the instrument (No. 7), commencing by the end to which the bone ring is attached. After reaching the perineal region, he attempted to withdraw the catheter, but the ring became detached and remained within the urethra. The patient desired to have the ring pushed into the bladder, as pain and a desire to pass water had supervened. At a consultation of Dr. Andant and Lonstalot, it was resolved to use the following contrivance: A No. 7 catheter was obtained, and the bone ring being taken to a smith, an iron rod, of the same diameter as the catheter, was chosen, one end of which was turned, so as to act as a screw, fitting the grooves of the bone ring. The instrument was put into the hands of the patient, because, by long practice, he had learned the peculiarities of his urethra. The presence of the bone ring in the urethra having been previously ascertained, the patient was directed, when reaching the ring, to roll the free end of the rod in his fingers, so as to introduce the male screw into the ring. This was very cautiously and cleverly done, and when it was supposed that the rod was sufficiently fixed, it was slowly withdrawn, and the ring was brought to light, to the great satisfaction of both the patient and the surgeons.—*Lancet*.

THE distribution of the Hospital Sunday fund, by the Committee, was as follows:—

Massachusetts General Hospital	\$4,531.74
Carney Hospital	862.84
Massachusetts Homœopathic Hospital	571.02
Channing Home	574.16
House of the Good Samaritan	971.42
St. Elizabeth's Hospital	555.72
The Children's Hospital	1,147.27
St. Luke's Home for Convalescents	641.45
New England Hospital for Women and Children	1,146.03
Massachusetts Charitable Eye and Ear Infirmary	916.79
Boston Dispensary	829.92
Charlestown Dispensary	265.00
Dr. Cullis, Consumptive's Home	90.00
Dr. Cullis, Cancer Hospital	200.00
Boston Lying-in Hospital	5.00
Children's Mission	.60
<b>Total</b>	<b>\$13,309.96</b>

The above distribution of the general fund is based on the number of weeks of board and treatment given gratuitously by the hospitals during their last financial year. The last four-named institutions on the list were the recipients of special contributions alone.

## Correspondence.

## LETTER FROM PHILADELPHIA.

PHILADELPHIA, June 4, 1874.

MESSRS. EDITORS,—A poorly drained city may be fairly compared to a case of empyema left to the tender care of nature, who, strive as she may, is sometimes but a clumsy physician. Virchow's pamphlet, "Drainage or Diarrhœa," roused the authorities of Berlin to the necessity of providing their unwholesome city with an alimentary canal. Would there were a Virchow here! How the city of Philadelphia escapes yearly epidemics of cholera, typhoid fever, diarrhœa and kindred evils is a problem. Drainage facilities are in process of construction here and there, but authorized less with a view to promotion of public health than for the purpose of giving a profitable job to a slave of the "Ring." Even at this early season, smells are countless. Every district has its peculiar odors, and one involuntarily recalls the famous couplet of Coleridge in relation to the city of Cologne:—

"Ye nymphs who reign o'er sewers and sinks," &c.

The advance of summer is to be dreaded, for the historic cleanliness of the Quaker City has departed. I have seen typhoid in the Berlin hospitals until it became fairly monotonous to visitors as well as to the physician, who frequently skipped an entire ward, remarking, with a shrug of the shoulders, "*nichts als typhus*." He knew well enough how it originated, but was powerless against the cause, just as physicians are likewise powerless in our ring-ridden city. There are commissioners of streets in Philadelphia. They handle large appropriations, but what becomes of the funds is a query more opaque than the riddle of Samson. There are hundreds of strong men here who eat their crust and their potato without knowing how another mouthful can be obtained, and still the streets remain filthy. Yorick's skull could scarcely be more offensive than some of them. In eight months, the street in which I reside has been cleansed *once*—a prominent highway at that.

I once spent a summer in a little German town whose streets were sweet and clean as a pine grove. I had frequently noticed about the town men in couples, pushing before them big casks suspended between wheels. They constantly stopped to enter houses along their route, carrying with them vessels filled with a liquid which they took from the casks. I noticed, too, that they poured this same fluid into the gutters and sewers. Upon inquiry, I learned that the casks contained a disinfecting, deodorizing liquid, of which every householder, who had not already sweetened and purified his belongings, was obliged to purchase and use a certain quantity, or which was thus applied by the carriers. I was struck with admiration, and wondered whether such a procedure would be considered too autocratic in republican America. But, Heaven help us! Worse diseases infest our city than those which proceed from gutters and garbage, and but for which our streets would be well sewered and clean as house-floors. Knavery and selfish, gluttonous greed are those diseases, the specific for which seems to be unknown. The honest many knuckle to the unscrupulous few.

It seems improbable that I shall ever be able to avoid mention of the Siamese twins. They were nearly repeated the other day in North Carolina. A colored woman gave birth to twins, united precisely as were the Siamese twins, with the exception that the union was more extensive in proportion to the general development. Both children were perfectly formed, one being smaller than the other. The supply of blood during fetal life was the same as in case of the Siamese twins, namely, by one umbilical cord, which entered the middle of the connecting band. But for want of timely aid at birth, this new monster would probably have lived. A curious feature in the new pair of inseparables was, or rather is (for the bodies have been preserved), that one is black, the other mulatto. This case reminds me of the

wondrous tales of monstrosities told in a queer little book, now one and a half centuries old, which I unearthed in a German town as odd as itself. The book was written by Ernst Antons Nicolai, a learned doctor, who gravely discusses mothermarks and monstrosities most edifyingly. He is, however, especially severe upon one Thomas Bartholinus, who reports the birth of a child with a cat's head, the original cat having frightened the mother in the early days of pregnancy by concealing herself in the bed. "The worst of these stories," says Nicolai, "is that even learned men accept them on faith, and without sufficient inquiry as to whether they be well grounded." "Now Bartholinus has imparted to the world the history of a child with a cat's head. In order, then, that this cat might be of use and have something to do, the story of the cat must be followed by that of a rat, and close thereupon Bartholinus relates that 'a lady brought into the world a great rat; this rat disappeared with great speed, and the witnesses, who never saw it again, were uncommonly frightened.' Bartholinus would have been very angry if these stories had been doubted, 'for,' continues he, 'I will not hope that these true events may become misbelieved,' and in order to convince his readers of his veracity: 'I hear,' says he, 'from a Polish nobleman, that a woman in his country gave birth to two small fishes, without scales, which, so soon as they were born, swam in water like other fish.' If I gave my opinion (drily adds Nicolai) it would be that these fish swam a great deal more in Bartholinus his head than in the water." And then this delightful old fellow, in a sort of German, which I cannot begin to put into modern English of the same flavor, goes on describing monsters which had a truer existence than the cats and rats of Bartholinus.

If I were writing on monstrosities, I should not fail to make use of some of these extremely interesting abortions, which are described by Nicolai with a quaintness and physiological opacity more than amusing.

This afternoon, the new University Hospital building will be dedicated. Besides the main structure, now completed, pavilions are to be erected, in order to give increased accommodation to patients. In consideration of the generous gifts from State and city, a large number of free beds are to be kept "forever" open to the sick and poor of the Commonwealth, fifty beds being allotted to the city alone. In one of the pavilions now erected, bathing facilities, very perfect in character, are to be arranged under the supervision of Dr. Duhring, and will comprise the electrical, Russian, Turkish, needle, vapor, pine, mercurial, shower, douche, constant and mineral bath, thus forming one of the most complete systems of baths yet established. The main building contains lecture-rooms, capable of seating seven hundred students. Happy University! The ground upon which it stands was presented by the city. The building funds (about \$500,000) were given by State and city. Gifts have rained down upon the fortunate institution, not, however, without earnest, untiring diligence on the part of the Faculty, of whom Prof. Wm. Pepper, and John Welsh, Esq., of the Board of Trustees, have been the workers whose magical influence, in opening the pockets of individuals and the Treasury of the State, has achieved the present robust and energetic condition of the University.

Jefferson Medical College is also, it is hoped, on the smooth road to new developments. By individual subscription, \$50,000 have been raised toward the expense of a new hospital. When this amount becomes doubled, the Legislature will contribute \$100,000 to this object. It is to be earnestly hoped that the happy end is not far removed. Prof. Samuel D. Gross, present incumbent of the Chair of Surgery in Jefferson College, read a paper this week upon scrofula, before the National Medical Association at Detroit. The essay has attracted the attention of the whole profession.

The summer sessions of the medical schools of Philadelphia are now in progress. They consist mainly of lectures by the sub-faculty—the younger men—the subjects discussed being special topics, as laryngoscopy, pathological anatomy, minor surgery, syphilis, study of the urine, toxicology, the eye and the ear. Surgical clinics are held semi-weekly, and are, of course, conducted by the professors of that branch of medicine. The classes number,

perhaps, one-third of their winter complement, and the lectures terminate at 2 o'clock, P.M. Afternoons are devoted to reading (by those men who do read) and dissecting. Quiz-men use this opportunity for coaching their students in special matters, giving private lectures on that bugbear the brain, on the eye and ear, &c.

Professors Pancoast, senior and junior, removed yesterday the left superior maxilla of a man aged 60, for epulis, which had crept into the antrum. The incision extended along the inferior maxilla from the sigmoid notch to the median line. After dissecting and turning back the flap, the malar bone was divided by a chain saw, and the median attachments of the superior maxilla divided by bone forceps. The bone was found to be simply a mass of *débris*, and the excision encroached upon its fellow of the left side. The infra-orbital was divided within the orbit. The velum palati, having lost its attachments, fell into the pharynx, from which it was subsequently lifted and restored to its place by means of sutures, which connected it to the sheath of the right masseter muscle and the periosteum of the left malar bone. Before the cheek flap was replaced, its inner surface was seared with a hot iron. A vain attempt, perhaps, to prevent recurrence. Prof. Joseph Pancoast has done this operation thirty-five times. His experience leads him to form an unfavorable prognosis, his object in operating being mainly to prolong the life of the patient by two or three years.

I hope you have seen, or possess, a case of Barth's pathological preparations (Dr. Otto Barth, of Leipzig), one hundred in number. They are beautifully mounted in refined resin, on fine glass slides, are stained either with carmine or hæmatoxylin, disposed in racks in a highly finished box of mahogany, and, notwithstanding you find here and there a section which may be a trifle too thick, they are invaluable to physicians who use the microscope, but have neither time nor opportunity to prepare specimens for study or for use in teaching. Enclosed, I send you a printed list of the preparations, which you will doubtless be glad to show to any gentlemen who may wish to see it. Such a collection, if brought into general use, would undoubtedly create a more general interest in the microscopic study of disease.

Summer is upon us with an energy (96° in the shade) which makes one dream of the sea and the New England hills. The sublimest patience with the weather, as well as with the shameful, disgusting condition of our streets, seems to be our only resource. Naturally, we anticipate a rapid increase in the death-rate of the city, and if our commissioners of streets (recruiting sergeants, rather let us say, for the dread visitant!) all become stricken with fell disease, can we pity them?

UNGENANTT.

#### HOW TO DISCOVER SMALLPOX IN ITS EARLY STAGE.

CHATTANOOGA, TENN., June 11, 1874.

MESSRS EDITORS.—I ask your comments on the enclosed clipping, the date and source of which I do not know, from the fact that it came into my possession in its present form.

Very respectfully yours,

J. S. BURNS, M.D.

The *Eclectic Journal*, in an article on smallpox, admonishes physicians not to be hasty in passing their opinion that any eruptive disorder is that loathsome disease until they prove the following diagnostic symptoms:—

"Now we offer this secret to the profession. So soon as the eruption appears, by pressure with the point of the finger may be distinctly felt the small, hard substance, precisely as if a small, fine shot had been placed under the cuticle of the skin. This peculiar appearance belongs to no other eruptive disease. We have applied the term secret here, for while it is and has been known to a few physicians, it is not mentioned in any of the standard authorities, nor does the writer claim the credit of the discovery. After this, all works upon practice will add this unfailing diagnostic symptom."

We are not aware that this is in any way new.—EDS.

## Medical Miscellany.

THE Dublin Hospital Sunday movement has been greatly discouraged by the Roman Catholic church, but, in spite of this, some fifty churches, including Jews and Protestants of all denominations, have promised coöperation in the movement.

"PROBABLY most will agree with us that the national body [American Medical Association] was excelled in the interest of its transactions, as it was in the number of its participants, by the Massachusetts Medical Society. —*Philadelphia Medical Times*, June 27, 1874, p. 618.

DEATH FROM CHLOROFORM.—The *British Medical Journal* of June 27th says: "Another of these distressing accidents, the frequent repetition of which has already given Cincinnati an unenviable notoriety, has lately occurred [there]." *Caveat Actor!*

### AGREEABLE PURGATIVE.—

R. Magnesiae calcinat., ʒi ss.;  
Aque puræ, ʒij.;  
Syrup. orgeat (or curaçoa), ʒss. M.

HÆMORRHOIDS.—Dr. Wm. Colles, Dublin, lately injected twenty minims of tincture of perchloride of iron into each internal hæmorrhoidal tumor. No traces could be found some weeks afterward, by speculum, except nodules, of the size of shrivelled currant. The case had resisted Dr. Houston's application of fuming nitric acid.—*British Medical Journal*, June 27, 1874, p. 849.

TREATMENT OF PARAPHIMOSIS.—M. Bardinot suggests the following simple method of reduction:—

Pass between the prepuce and corona a blunt lever—the blunt end of an ordinary hairpin answers well—one end being placed in the upper, another at some nearly corresponding place beneath. The fingers are then used in drawing forward the prepuce by a sort of screwing movement, the hairpin or other blunt instrument, such as the handle of an ordinary teaspoon, acting as a lever to slide the prepuce over.—*New York Medical Record*.

IT ANSWERED WELL IN MY HANDS.—"There is a clan of practitioners," says a late writer, "of an enthusiastic and self-applauding, credulous disposition, who are invariably satisfied that, had they not done exactly what they did do, and exactly at the moment it was done, the result would have been very different, i. e., much less satisfactory. This is a most enviable disposition, for it is the source of inexhaustible happiness to its possessor throughout his life. It is also the most unphilosophical disposition conceivable, and almost fatal to self-improvement."

A SIMPLE METHOD OF REDUCING THE DISLOCATION OF THE FOREARM BACKWARDS.—Dr. Alexander Murray writes to the *New York Medical Record* of July 1, 1874, that he has reduced five cases of the above-mentioned dislocation by the method to be described.

Supposing the dislocated arm to be the left. Dr. Murray takes his position at the outside of the dislocated arm, and places the palm of his right hand to the palm of the patient's left, dove-tailing his fingers between each of the patient's. In this way, a firm hold is secured for extension. He then places his elbow as a fulcrum and for counter-extension on the forearm in front and against the lower end of the humerus, and by a steady pressure downwards and backwards, and at the same time flexing the forearm towards the shoulder, in a few minutes the luxated bones slip into their natural places. Other dislocations of the elbow can be reduced by the same method.

**POISONED AT A CHEMICAL LECTURE.**—A very tragic occurrence took place recently at Bucharest. Dr. Bernath, the principal of a public laboratory in that city, was giving a popular lecture on chemistry. Among his hearers was a Madame Davila, a lady of good family and intimately acquainted with the professor. The lady was taken ill in the course of the lecture, and the doctor prepared a draught for her, in which he intended to mix some quinine, but by accident used strychnine instead. The unfortunate victim was taken out into the street, and died almost instantly.—*Boston Journal of Chemistry.*

**THE HORSE AND HIS RIDER.**—M. Perret, a French pharmaceutical chemist, has discovered a very simple and economical method of saving horses, particularly when they are not in motion, from being tormented by flies. It consists in merely rubbing them with a little concentrated oil of laurel, which is extremely disliked by the flies. The oil should be specially applied to the parts where the flies usually settle. With about three pennyworth of this oil a horse can be annoiued for three days. There is not the slightest danger in using it, and, indeed, its slightly stimulating action is beneficial to horses, and keeps their coat in good order. This expedient may also be usefully replaced by a solution of 60 grammes of assafœtida mixed with one glass of vinegar and two of water. The strong odor of the assafœtida drives away the flies, and if horses be well washed with this, not a fly will settle on them. No apprehension need be felt in using the assafœtida, which has no deleterious properties.—*The London Medical Record.*

**ORE ON INTRAVENOUS INJECTIONS OF CHLORAL.**—M. Oré, in a communication to the Paris Academy of Sciences, upon intravenous injections of chloral, arrives at the following conclusions: To obtain complete anesthesia, the solution should be of one-third strength. Injection should be effected always by the process of direct puncture, without denudation of the vein. The surgeon should perform the operation slowly, so that he may sound the predispositions of the patient. When the patient indicates that a sleepy feeling is attained, anesthesia is also imminent. From the time that sleep is produced, injection should be discontinued; in a few minutes, such a state of anesthesia will evince itself as chloroform could never produce. The operation concluded, immobility may be removed by application of the electric current. From the commencement of the operation, the surgeon should have in readiness an electrical apparatus. Anesthesia produced by intravenous injection of chloral is applicable to all surgical operations, especially to those of long duration, resections, ovariectomies, &c.—*London Medical Record.*

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**MORTALITY IN MASSACHUSETTS.**—Deaths in fourteen Cities and Towns for the week ending July 4, 1874.

Boston, 143; Worcester, 14; Lowell, 11; Milford, 1; Chelsea, 6; Cambridge, 22; Salem, 4; Lawrence, 9; Springfield, 7; Fitchburg, 1; Newburyport, 2; Fall River, 16; Haverhill, 6; Holyoke, 6. Total, 248.

*Prevalent Diseases.*—Consumption, 44; pneumonia, 21.

F. W. DRAPER, M.D.

Secretary pro tem. of the State Board of Health.

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**DEATHS IN BOSTON** for the week ending Saturday, July 11th, 105. Males, 53; females, 52. Accident, 4; apoplexy, 3; bronchitis, 1; inflammation of the brain, 1; congestion of the brain, 1; disease of the brain, 3; cancer, 2; cholera infantum, 13; consumption, 9; convulsions, 3; debility, 6; diarrhoea, 4; dropsy of the brain, 3; drowned, 2; erysipelas, 1; scarlet fever, 1; typhoid fever, 2; disease of the heart, 6; intemperance, 2; disease of the kidneys, 7; laryngitis, 1; disease of the liver, 2; congestion of the lungs, 2; inflammation of the lungs, 4; marasmus, 5; measles, 1; neglect, 1; old age, 1; paralysis, 3; premature birth, 2; peritonitis, 1; puerperal disease, 1; occlusion of the rectum, 1; syphilis, 1; teething, 1; tumor, 1; whooping cough, 3; unknown, 1.

Under 5 years of age, 56; between 5 and 20 years, 3; between 20 and 40 years, 15; between 40 and 60 years, 17; over 60 years, 14. Born in the United States, 75; Ireland, 20; other places, 7.